Even if the above-referenced equipment could successfully be characterized as performing a switching function, the conclusion that switching equipment serves no interconnection or network access function incorrect and thinly supported only by outdated regulatory pronouncements. As discussed above, the Act supplies no fixed definition of "interconnection" or "access" to network elements. Nor has the Commission ever adopted any operational definition of switching that would exclude switching as performing an interconnection or access function. The function of a conventional switch is simply to open or close a circuit to direct a signal to the appropriate path for transport to another central office or point-of-presence. While an incumbent LEC switch may perform no inter-carrier connection or network access function within the contemplation of section 251, a *CLEC* switch collocated in an incumbent LEC central office clearly serves such function no less than a loop connection to the incumbent LEC switch. A collocated CLEC switch routes the CLEC signal either from or to a customer from or to other points on the incumbent LECs network, much the same way a railroad switch allows a train to access another line of the same or a different railroad.[60]

A closer examination of Commission precedent reveals that the Commission has never found – based on record evidence – that switches do not perform interconnection or network access functions. To the contrary, in its *Expanded Interconnection Orders* that preceded the 1996 Act,[61] the Commission decided against collocation of switches in incumbent LEC space – *not* because such equipment does not perform an interconnection or network access function – but rather because: (1) most interconnecting carriers preferred to place their equipment in their own space; (2) most parties agreed that there was no technical or quality advantage to collocating switches in incumbent LEC central offices; (3) the size and weight of the switches (most of which would have occupied several hundred square feet of collocation space) would lead to the

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[60] *See Bell Atlantic v. FCC, supra*, 24 F.3 at 336 (analogizing interconnection to railroad switch function).

[61] *See Expanded Interconnection with Local Telephone Company Facilities (Transport, Phase II)*, Third Report and Order, CC Docket No. 91-141, 9 FCC Rcd 2718 (1994) ("*Expanded Interconnection Third Report and Order*").

exhaustion of incumbent LEC space and require considerable property upgrades to provide for heating, ventilation and air conditioning; (4) no parties had offered any reason why it would be difficult to distinguish switching equipment from transmission equipment; (5) no parties had demonstrated the need for collocation of such equipment to ensure fair and nondiscriminatory treatment of interconnecting carriers by CLECs; and (6) the Commission's tariffing and general nondiscrimination requirements provided sufficient protection against unfair or unreasonably discriminatory LEC rates and practices.[62]

Today, almost five years after the passage of the 1996 Act, these considerations are no longer valid. First, unlike the case in the FCC's *Expanded Interconnection Order*, Congress's objective in adopting the Act was to provide a framework for sustainable competition in the local exchange service market and expressly provided for the promotion of advanced services. The FCC's mandate is to reduce barriers to competition throughout the entire local exchange network. As the variety of services that can be offered over the local exchange network increases, the barriers to entry by CLECs seeking to provide such services have increased proportionally. Each advance in technology creates battlefields anew over the application of incumbent LEC obligations to its competitors in areas such as Digital Subscriber Line ("xDSL") service, line sharing, and DLC and next generation IDLC and remote terminals. The impact of evolving technology on the variety and functions of equipment that enables interconnection and network access in the central office is enormous, providing substantial opportunity for incumbent LECs to exclude competition with network design choices that favor themselves or their advanced service affiliates.

Second, contrary to the Commission's original findings, carriers requesting collocation for interconnection and/or access to UNEs would seek to place in central offices certain types of advanced services equipment that arguably perform switching functions. Moreover, such equipment does not inordinately occupy collocation space, as technological advances shrink the

62 *Id.* at ¶ 35.

equipment considered in the *Expanded Interconnection Order* to a mere fraction of its former size.

Third, as predicted in the Commission's *Local Competition Order*, "modern technology has tended to blur the line between switching equipment and multiplexing equipment, which we permit to be collocated."[63] As the contemporary telecommunications market becomes increasingly characterized by packetized data traffic, there is no meaningful distinction between interconnection and switching functions, especially in equipment that is no more than data processing equipment that receives, multiplexes or de-multiplexes, and processes data streams according to software resident in the equipment. Accordingly, equipment such as ATM switches and routers are themselves necessary for interconnection under the statutory standard regardless of whether they are viewed as integrated with other functions or not.[64]

Fourth, as recent proceedings demonstrate, the Commission can no longer contend that broad authority for CLECs to collocate such equipment is not necessary to prevent discrimination and reduce barriers to entry in the market for advanced services within the meaning of section 251(c)(6). The FCC's *Project Pronto Order*,[65] approving certain modifications to the conditions imposed in the *SBC/Ameritech Merger Order*,[66] underscores the discrimination inherent in the provision of advanced services by incumbent LECs. Therein, the FCC required SBC/Ameritech to create a separate advanced services subsidiary to own and operate advanced services equipment such as ATM switches, OCDs, and DSLAMs. The imposition of these conditions by the FCC is noteworthy, because those vertical line of business conditions implicated have little, if anything, to do with any anti-competitive effects resulting from an horizontal, end-to-end merger

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63 *Local Competition Order* at ¶ 581.

64 It is worth noting that SBC's optical concentration device ("OCD") that it plans to employ in connection with its Project Pronto is an ATM switch. It is necessary that CLECs deploy ATM devices in order to *interconnect* with these OCDs.

65 *Ameritech Corp., Transferor and SBC Communications, Inc. Transferee*, CC Docket No. 98-141, Memorandum and Order FCC-00-336 (Rel. September 8, 2000) ("*Project Pronto Order*").

66 *See Ameritech Corp., Transferor and SBC Communications, Inc. Transferee*, CC Docket No. 98-141, Memorandum and Order 14 FCC Rcd 14712 (1999)("*SBC/Ameritech Merger Order*").

among two incumbent LEC holding companies serving different geographic areas. To the contrary, the Commission's underlying motivation appears to have been the enhancement of market-opening obligations imposed under section 251. Specifically, in creating an advanced services affiliate that owns and collocates equipment at central offices and remote terminals of SBC/Ameritech LECs, the Commission established a clear basis for requiring SBC/Ameritech's incumbent LEC to allow *all* CLECs to collocate advanced services equipment at central offices and remote terminals on just and reasonable and nondiscriminatory terms and conditions.[67]

The FCC's *Project Pronto Order* modifying the separate affiliate requirements in the *SBC/Ameritech Merger Order* further underscores the need for collocation of such equipment. In its *Project Pronto Order*, the Commission allowed SBC/Ameritech LECs to continue to own advanced services equipment such as OCDs, ATM switches and DSLAMs placed in remote terminals and central offices, subject to a number of conditions. One condition obligates SBC/Ameritech to offer CLECs the right to competitive access to all of its network elements used in conjunction with its "Broadband Offering." SBC/Ameritech also agreed to allow CLECs the right to install "plug-in" cards in NGDLC systems. In another condition, SBC/Ameritech agreed to allow expanded collocation at central offices and at remote terminals. The *Project Pronto Order* thus permits CLECs to collocate OCDs, ATF switches, routers, and any other equipment at the central office used to provide advanced services, and further obligates SBC/Ameritech to provide for construction of additional collocation space at remote terminals under state tariffed rates. Because the conditions imposed in the *SBC/Ameritech* – as modified in the Commission's *Project Pronto Order* -- are based *entirely* on the need to prevent discrimination, there is no basis on which the Commission can decline to impose similar conditions, generically, on the rest of the incumbent LECs in this country. The same cautionary tale holds true of the Verizon merger.

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[67] *See Project Pronto Order*, slip op. at 8 ¶ 13 (noting that separate affiliate condition "ensur[ed] that competing providers of advanced services have nondiscriminatory access to those inputs of the incumbent needed for advanced services").

Given evidence of the inherent and potentially endemic nature of discrimination and barriers to entry in the local telecommunications market, the FCC has full authority to expand the collocation obligations of incumbent LECs, in line with the FERC's imposition of involuntary retail wheeling on electric transmission companies, as discussed above. The Commission's findings of discriminatory incentives and behavior in the case of SBC/Ameritech open the door to broader findings of discrimination on the part of other LECs. Verizon is but one example of an incumbent LEC that has steadfastly resisted interconnection with and collocation of advanced services equipment at central offices and remote terminals, even as it collocates such equipment itself in anticipation of its creation of an advanced services affiliate under the conditions imposed in the *Bell Atlantic/GTE Merger Order*.[68] That the FCC's order approving the Bell Atlantic/GTE merger applies any determination made in its *Project Pronto Order* equally to Verizon, not only confirms the Commission's assessment of discrimination by Verizon, but also creates broad collocation obligations on the two largest LECs serving approximately two-thirds of the entire country.

In these circumstances, anecdotal evidence of pervasive discrimination and barriers to competition constitutes more than sufficient justification for broad exercise of the Commission's remedial authority to require collocation.

1. Multifunction Equipment Is Eligible For Collocation on ILEC Premises If It Contains Features and Functions That Enable Interconnection or Access to UNEs

As discussed, any equipment that is commercially available and that enables interconnection or access to UNEs meets the necessary test. Further, consistent with the ordinary meaning of the terms of the statute and the statutory purposes, "necessary" may be interpreted to mean that the incumbent LEC must provide collocation of any equipment that contains the

[68] *See Applications of GTE Corp., Transferor, and Bell Atlantic Corp., Transferee, for Consent to Transfer Control*, Memorandum Opinion and Order, FCC 00-221 (June 16, 2000) at ¶¶ 260 *et seq.* ("*BA/GTE Merger Order*").

features and functionalities enabling interconnection, despite additional telecommunications functionalities the equipment may contain. This would include equipment that enables interconnection but also performs data routing and other functions, including switching, to the extent that any such functionalities may not of themselves be viewed as absolutely enabling interconnection or access to UNEs.

As a matter of the ordinary and fair meaning of the statute's terms, "equipment necessary for interconnection" may easily be read to encompass equipment generally available in the marketplace that has the features and functionalities necessary for interconnection, even though it also has other features and functionalities which are integrated with the interconnection functionality.

Practical considerations support this such an expanded view. In 1996, for example, a Class 5 Switch was approximately 100 times the size of a typical ATM or modern "soft" switch. A state-of-the-art switch in 1999 required an entirely separate and conditioned room. Now, several modern switches can fit easily within the space of a typical 10' by 10' collocation cage. With developing technologies, integration of functionalities that was impossible in 1996 is now totally practical. Just as expanding technology has broadened the concept of "automobile" beyond the Model T to include additional functionalities not imagined by Henry Ford, so too the concept of "equipment necessary for interconnection or access to UNEs" ought not be frozen at the level of the technology in existence in 1996. One of the principal purposes of the 1996 Act was "to accelerate rapidly private sector deployment of advanced telecommunications and information technologies and services to all Americans."[69] In light of this purpose, there is no reason to believe that Congress intended to preclude collocation of subsequently developed multi-functional technology that is increasingly used by all local service providers to bring to Americans the benefit of these new telecommunications and information services. The FCC's charge to periodically review the propriety of its regulations is a further indication that section

[69] Sen. Rept. No. 104-230, 104th Cong. 1st Sess. (March 30, 1995) at pp. 1-2.

251(c)(6) is not a static obligation and permits collocation of a wide range of evolving telecommunications equipment that performs functions in addition to enabling interconnection and access to UNEs to keep CLECs on a competitive footing with incumbent LECs.

2. Require ILECs to Permit Collocation of Multifunction and Stand-Alone Equipment As a Permissive and Reasonable Condition of Collocation

a. The Commission Has Authority to Prescribe Reasonable Terms and Conditions on Collocation under Section 251.

As noted, section 251(c)(6) requires incumbent LECs to provide physical collocation of equipment necessary for interconnection and access to UNEs on rates, terms, and conditions that are just, reasonable and nondiscriminatory. Pursuant to that section, the Commission may, and should, require that incumbent LECs permit collocation of multifunction equipment and some stand-alone equipment as a reasonable condition of providing collocation generally. Thus, the Commission may enunciate the "reasonable conditions" pursuant to which incumbent LECs must offer physical collocation.[70]

The fundamental requirement of reasonableness is the governing regulatory standard under which the Commission may adopt rules that will ensure competitive parity between collocating CLECs and the incumbent LECs. The court's decision in *GTE v. FCC* is not to the contrary. The court struck down regulations that variously allowed CLECs to choose where to establish collocation on the LEC's property, prohibited incumbent LECs from requiring CLECs to use separate entrances to access their own equipment, and barred incumbent LECs from requiring competitors to use separate or isolated rooms or floors. The court, however, did not rule out reasonable guidelines for the provisioning of collocation space to achieve the statutory objectives of the Act. To the contrary, the court merely directed the Commission to tie the rules to the statutory standard.

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[70] *In re Trans Alaska Pipeline Rate Cases*, 436 U.S. 631, 653 (1978).

In carrying out its authority to establish terms and conditions for collocation, the Commission is not bound to adopt rules that require LECs to provide the absolute minimum terms and conditions "necessary" to allow for interconnection. The court stated that "[t]he statute requires only that LECs reasonably provide space for 'physical collocation of equipment necessary for interconnection or access to unbundled elements at the premises of the local exchange carrier,' nothing more."[71] However, the court was grappling with the type of equipment for which incumbents are required to provide collocation space. Once equipment is determined to be *necessary* for interconnection or access to UNEs - and thus eligible for collocation on incumbent premises- the incumbent LEC's offering must satisfy the requirement that the terms and conditions of such collocation be "reasonable" and "nondiscriminatory."[72] Indeed, once collocation is deemed necessary for interconnection and access to UNEs under section 251(c)(6), the requirement that the incumbent offer collocation on "reasonable" and "nondiscriminatory" terms and conditions follows.

b. Requiring Collocation of Multifunction Equipment Is A Reasonable Condition

Failure to permit CLECs to collocate integrated, multifunction equipment would significantly increase their cost of providing competitive services, especially in smaller and rural markets, because of the need to obtain separate space, easements, use of the public rights of way, and to establish communications links to backhaul traffic from the incumbent LEC central office. This would also substantially delay, and otherwise handicap, CLEC entry into new markets.

On the other hand, allowing collocation of multifunction telecommunications equipment would not increase CLEC occupation of incumbent LEC central offices, or at most marginally, for which the incumbent LEC is duly compensated. In fact, with the increasing efficiency and compactness of telecommunications equipment, collocation of many types of equipment requires

71 *GTE v. FCC*, 205 F.3d at 423.

72 47 U.S.C. § 251(c)(6).

little more than a refrigerator sized space. Many CLECs have already built and paid for collocation space (usually at exorbitant prices), making it some of the most expensive real estate in the country.[73] Simply stated, it is reasonable to permit CLECs to collocate multifunction equipment because it would greatly facilitate their ability to compete and would not have any significant impact on incumbent LECs central office space.

Market incentives keep CLECs from placing unrelated equipment in incumbent LEC premises. Incumbent LECs' prices for collocation space are so high that it would make little sense for CLECs to collocate equipment beyond what is "necessary" for interconnection and access to UNEs. The cost per square of space in CLEC premises can be much lower than that of collocation space in incumbent LEC premises. Further, the local telecommunications marketplace is in transition to competition during which CLECs must have the ability to collocate the equipment that they have already chosen to collocate. Incumbent LECs are attempting to use the collocation provisions of the statute to undermine competition, when these provisions are intended to assist CLECs to overcome incumbent LECs' resistance to offering collocation on reasonable terms and conditions. For all these reasons, it is a reasonable condition of making collocation available generally that incumbent LECs permit collocation of multifunction equipment. Failure to do so would create impermissible barriers to competition.

C. ILECs Must Be Required to Permit CLECs to Self-Provision Cross-Connects Between Collocators in ILEC Central Offices

1. Section 251(c)(6) Applies to Interconnection Between CLECs on ILEC Premises

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[73] The Commission has recognized that incumbent LECs routinely charge in the range of $300,000 for collocation space. *In the Matters of Access Charge Reform, Price Cap Performance Review for Local Exchange Carriers, Interexchange Carrier Purchases of Switched Access Services Offered by Competitive Local Exchange Carriers, Petition of US WEST Communications, Inc. for Forbearance from Regulation as a Dominant Carrier in the Phoenix, Arizona MSA*, CC Dockets Nos. 96-262, 94-1, 98-157, and CCB/CPD File No. 98-63, Fifth Report and Order and Further Notice of Proposed Rulemaking, FCC 99-206, 14 FCC Rcd.14221 at ¶ 81 (1999)("*Pricing Flexibility Order*").

Section 251(c)(6) should be read to require incumbent LECs to permit at their premises interconnection among CLECs' networks, as well with as the incumbent LECs' network, provided that those other CLECs have interconnection points "at the premises of the local exchange carrier." Under the statutory language, cross-connection is "interconnection . . . at the premises of the local exchange carrier," it does not specify *with the incumbent LEC exclusively.* The Commission should reject any incumbent LEC argument that the intended meaning of the statute is to provide only for collocation of equipment necessary for interconnection to the incumbent LEC's network. Nothing in the legislative history supports that limited, static interpretation.

Requiring incumbent LECs to permit CLEC cross-connection under section 251(c)(6) is also consistent with the structure of the statute. Section 251(a) requires all carriers - including CLECs - to interconnect with other carriers. Moreover, section 251(c)(6) requires any conditions imposed on interconnection to be "nondiscriminatory." Incumbent LECs interconnect with many CLECs at their premises. Denial of CLECs' requests to cross-connection with each other on an incumbent LEC's premises would violate the requirement that incumbent LECs provide collocation on a nondiscriminatory basis, because the incumbent LEC could connect with a collocating CLEC at the incumbent LEC's central office, but another CLEC could not. Cross-connection is necessary to put each collocating CLEC in a position to achieve the same interconnection with other CLECs as the incumbent LEC itself is able to do. Even if "interconnection" were to be defined narrowly to encompass only interconnection with the incumbent LECs' network, any condition denying cross-connection would violate the statute's broader prohibition against "nondiscriminatory" conditions. The result is the same, under section 251(c)(6), the incumbent LECs cannot refuse to cross-connect to any collocating CLEC. Any contrary rule would violate one of the basic purposes of the Act - and of section 251(c)(6)- to provide CLECs "nondiscriminatory access."[74]

[74] House Rept. No. 104-204, *supra*, at p. 73.

Moreover, the Commission would be justified in noting that Congress understood both that CLECs would tend to "congregate" at incumbent LEC premises for interconnection and that proximity lends itself to efficient interconnection among CLECs, even if Congress did not say so expressly. Failure to do so will, as the Commission has recognized in analogous situations, needlessly introduce additional points of failure into CLEC network architectures because CLECs will be forced to use extended work-around links and connections.[75]

In addition, the term interconnection as used in section 251(a) obligates all telecommunications carriers to interconnect *directly or indirectly* with the facilities of other telecommunications carriers.[76] The general obligations of direct and indirect forms of interconnection applicable to all carriers found in section 251(a)(1) are imported when reading the interconnection obligations of incumbents in section 251(c)(6). Thus, Joint Commenters posit that incumbent LECs have an additional burden to support *indirect* forms of interconnection on their premises, which would include permitting cross-connects among CLECs in their central offices.

2. Cross-Connection Is a Reasonable Condition of Collocation

For the same reasons permitting collocation of multifunction of equipment is a reasonable condition of collocation generally, the Commission should also require incumbent LECs to permit CLECs to self-provision cross-connection with other CLECs as a reasonable condition of offering collocation. Self-provisioned cross-connection is crucial to CLECs' ability to compete and does not harm incumbent LECs.

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[75] *See Collocation Order* at ¶ 42 (rejecting efforts by the incumbent LECs to require intermediate frames between unbundled elements and collocated equipment because they were unnecessary, additional points of failure and introduced inefficiencies into competiors networks).

[76] Section 251(a)(1) provides for that "[e]ach telecommunications carrier has the duty to interconnect directly or indirectly with the facilities and equipment of other telecommunications carriers." 47 U.S.C . § 251(a)(1).

The inability of CLECs to directly cross-connect with other co-located CLECs would undermine advanced optical networking initiatives that require the use of dark fiber capacity leased from other competitive carriers because adequate optical cross-connect services from incumbent LECs are either unavailable and/or would degrade the quality of service that CLECs are able to provide. Indeed, incumbent LECs are able to order the cross-connect services from other fiber providers. As with all cross-connects obtained from an incumbent LEC, obtaining an optical cross-connect from the incumbent LECs adds needless additional cost and installation time for each circuit. Insistence that CLECs use incumbent LEC provided cross-connects on an Individual Case Basis introduces unrestrained costs and delays and limited technologies. Currently defined UNEs only include rates up to, but not exceeding, OC-48 levels. Today, CLECs are evaluating hardware capable of OC-192 and even OC-768 levels. CLECs would be blocked from using the advanced technology that enables them to build efficient, competitive networks if they are not permitted to self-provision cross-connection at these levels.

In addition, use of incumbent LEC hardware for optical cross-connection raises equipment compatibility issues that will further limit technology choice and likely decrease a CLEC's ability to deploy the most modern and advanced solutions available today. Use of incumbent LEC hardware also reduces circuit reliability because additional electronic hardware will be placed in the circuit. In contrast, direct self-provisioned cross-connection between CLECs does not raise any of these issues or thereby deny any users a competitive service quality choices.

At the same time, permitting CLECs to self-provision cross-connection in incumbent LEC central offices will not significantly increase occupation of incumbent LEC premises, or other burdens on incumbent LECs. In many cases, cabling can be run between adjacent collocation cages or equipment racks. In other situations where cabling must run the distance between CLECs' respective collocation spaces, it is not likely to increase burdens to incumbent LECs central office arrangements, because central offices by their very nature are designed to

facilitate cabling and performing interconnection. In any event, the Commission could establish reasonable limits on CLECs self-provision of cross-connection, such as requiring that only technically qualified personnel perform this work or provide for other safety concerns. CLEC self-provisioned cross-connection is not precluded under the statute. Instead, for the reasons discussed above, the Commission may, and should, require incumbent LECs to permit CLECs to self-provision cross-connection as a reasonable condition of offering collocation of equipment that enables interconnection or access to UNEs.

As a reasonable condition of collocation, the Commission should also clarify that a CLEC may self-provision cross-connects between its own properly collocated equipment. At least one of the Joint Commenters, Adelphia Business Solutions, Inc. ("Adelphia"), has experienced fundamental difficulty with this type of cross-connect provisioning on incumbent LEC premises. In Verizon territory, for instance, in order for Adelphia to link two non-contiguous pieces of its own equipment together, it must place an order for cross-connects with the incumbent LEC, which can take as many as four to six weeks to fulfill. As a general matter, incumbent LEC insistence that a CLEC obtain ILEC-provisioned cross-connects through the incumbent for its own equipment is not only unreasonable in the first instance, but also a delay of four to six weeks to run a cable to complete that work harms CLECs' ability to compete, is unnecessary, and unreasonably discriminatory as compared to incumbent LEC provisioning of comparable services it provides to itself.

D. The Commission Should Reestablish Reasonable General Collocation Provisioning Standards.

The Commission can take several steps to help assure parity of access to incumbent LEC central offices in accordance with the requirement that incumbent LECs provide nondiscriminatory physical collocation. The Commission can start by re-adopting the collocation requirements set out in paragraph 42 of the *Collocation Order*, which the court vacated only because it found that the Commission had provided insufficient justification under the statute for

such requirements.[77] The Commission should reinstate the requirement that CLECs be permitted "to collocate in any unused space in the incumbent LEC premises."[78] Joint Commenters do not believe that in originally imposing this requirement, the Commission intended to place arbitrary authority in the hands of CLEC regarding where to collocate. To correct this misunderstanding, the Commission should clarify that such a requirement is intended to constrain the *incumbent LEC* from unilaterally imposing arbitrary restrictions that would prevent collocation of CLEC equipment under the pretext of preserving space for future use by the incumbent.

The Commission should also reinstate its prohibition on the incumbent LEC's unilateral imposition of arbitrary or unreasonable requirements that the CLEC construct a room, cage, or similar structure for its equipment, collocate equipment on a separate floor, or create a separate entrance to its collocation space.[79] Such separation requirements go beyond ensuring that CLECs shoulder their fair burden of cost, but constitute clear barriers to entry not faced by the incumbent. For example, a requirement that CLECs collocate on separate floors or rooms reduces the universe of space available to CLECs, while leaving the incumbent LEC free to locate its equipment anywhere.[80] Requiring CLECs to construct separate entrances, instead of leaving CLECs free to use existing entrances, unreasonably increases costs for CLECs.

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77 14 FCC Rcd 4761, ¶ 42.

78 *Id.*

79 Incumbent LECs frequently justify separate room/isolated space requirements based on misplaced "security" concerns. First, the cost of resolving security concerns should not be borne exclusively by the CLECs, but should also be shared by the incumbent LECs. Second, state utility commissions have found less restrictive ways to address the purported incumbent LEC security concerns, such as security cameras, monitoring systems, or badges. See *Ordinary Tariff Filing of New York Telephone Company to Provide for the introduction of Cageless Collocation Open Environment (CCOE); rates and regulations for Adjacent Structures; and, clarifications and modifications to existing collocation offerings*, Case 99-C-0715, and consolidated case 95-C-0657, Order Directing Tariff Revisions at pp. 4-5 (NY PSC 1999).

80 For instance, in New York, Bell Atlantic unilaterally imposed a requirement that CLECs place their equipment in a separate lineup at least 10 feet away from working BA-NY equipment. CLECs argued that this rule limits the amount of space available, increases costs and may force CLECs to collocate in a separate room. The NY PSC agreed and disallowed this practice. *Id.*

Finally, the Commission should specifically prohibit incumbent LECs from establishing intermediate points of interconnection in lieu of direct connection to its network facilities. Here, the Commission can rely *both* on the technical feasibility of such direct connection and the incumbent LEC's obligation to provide collocation on just and reasonable and nondiscriminatory terms and conditions. Under the terms of the Act, incumbent LECs are obligated to provide interconnection "at *any* technically feasible point within the carrier's network."[81] This requirement, by definition, precludes a requirement of indirect interconnection in circumstances where direct connection is feasible. Moreover, unless justified by technical, operational, safety, engineering or security considerations, such a requirement places the CLEC at less than competitive parity with the incumbent LEC, thus violating the incumbent's obligation to offer interconnection at just and reasonable and nondiscriminatory terms and conditions. Accordingly, the Commission should prohibit incumbent LECs from requiring *indirect* interconnection unless the incumbent LEC certifies in writing that it cannot overcome the conditions that mandate such requirement.

E. The Commission Should Establish Minimum Provisioning Intervals for the Full Range of Collocation Arrangements.

The FCC has also requested comment on whether it should reduce the maximum provisioning interval for physical collocation arrangements to a number shorter than 90 days; and whether it should establish separate minimum installation intervals for various other types of collocation.

Joint Commenters welcome the Commission's tentative decision to adopt a maximum provisioning interval for physical collocation of 90 days. As the incumbent LECs have gained more experience with collocating CLEC equipment and installing equipment used to provide advanced services both for the incumbent LEC itself and its tenant CLECs, shorter intervals are

[81] 47 U.S.C. § 251(c)(2)(B) (emphasis added).

appropriate. All collocation is not the same. In particular, Joint Commenters would add that the Commission should adopt *considerably shorter* intervals where collocation necessitates gradations *less* than the full complement of collocation activities – *i.e.*, for modifications or additions to existing collocations, collocations within already prepared or conditioned space, or where the CLEC agrees to perform the work necessary to install a collocation cage.

Joint Commenters believe, for example, that 90 days is far too generous for a provisioning interval for augmenting existing collocation space necessary to install equipment associated with advanced services, such as splitters and cabling. Such collocation typically involves slipping equipment into existing racks with a few brackets and tightening thumb screws on cables to the back of the components. Acknowledging that such collocation necessarily involves less planning and logistical issues, Verizon has reduced the information required for applications for collocation augments by two-thirds. This reduction in paperwork – with its implications for the reduction in labor – should correspond to a shorter provisioning interval. Thus, for example, the Texas Commission has affirmed GTE's obligation to provide collocation augments within 30 calendar days, a time frame SWBT already specified in its collocation tariff.[82] Where the CLEC self-provisions a portion of the total collocation, a shorter provisioning interval for incumbent LEC work would also be appropriate.

III. COLLOCATION AT REMOTE TERMINALS

A. Collocation At Remote Terminals of Line Cards, DSLAMS, and Other Equipment Is Necessary for Interconnection and Access to UNEs.

Due to the accelerating growth in the provision of fiber-based DLC systems providing advanced services, remote terminals are fast becoming the equivalent of the central office. The Commission has already recognized the importance of remote terminals as essential aggregation

[82] *See* Docket No. 22168, *Petition of Covad Communications Co. and Rhythms Links, Inc. Against Southwestern Bell Telephone Co. and GTE Southwest Inc, etc.*, Interim Award, at 25.

points for access to loops and other essential network facilities and observed that "the remote terminal has, to a substantial degree, assumed the role and significance traditionally associated with the central office."[83] Therefore, CLECs require the same type of access to remote terminals as they do to incumbent LEC central offices.

The critical role of the remote terminal in facilitating the provision of advanced telecommunications services cannot be overstated. To be reliable, first generation xDSL technology required that a customer reside within 18,000 feet of the Digital Subscriber Line Access Multiplexer ("DSLAM"). Deploying next generation DLC or IDLC in remote terminals deeper into America's neighborhoods, overcomes this distance limitation by enabling local exchange companies to install or upgrade broadband gateways containing digital electronics with a much greater effective range. For example, SBC boasts in its Project Pronto initiative that:

> SBC has two primary goals: to bring advanced broadband data services to nearly all customers, and to integrate its voice and data networks to more efficiently and effectively transport that traffic. The more than $6 billion Project Pronto initiative should make these goals a reality. The strategy includes plans to: install fiber optics deeper into neighborhood networks and install or upgrade approximately 25,000 neighborhood broadband gateways containing *next generation digital loop carriers.* These neighborhood gateways will expand the reach of DSL service by taking the capabilities of the network closer than ever before to customers.[84]

The strategic assumptions underlying SBC's plans have been widely recognized (and emulated) by others in the incumbent LEC industry. In a recent public forum on *Competitive Access to Next-Generation Remote Terminals* held at the FCC on May 10, 2000, senior executives from three of the largest Regional Bell Operating Companies, together with representatives of major switch manufacturers and competitive local exchange companies, all touted the advantages of next generation remote terminals in providing advanced services.

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83 *Local Competition Third Report and Order*, ¶ 218.

84 *Project Pronto: SBC's Network Vision and Strategy* (November 199) (emphasis added).

Several of the incumbent LEC representatives spoke at length concerning their *current* plans to deploy next generation DLC as an integral part of their independent plans to push fiber deeper into neighborhoods to offer xDSL service. Notably, Mr. Masters of SBC expanded on the company's previous boasts made on behalf of Project Pronto, stating that:

> we have a very large initiative going on to try to put a lot more remote terminals in our network. . . . . We said earlier we have about 35,000 remote terminals, and they were adding another roughly 13,000. *We're upgrading 7-10,000 of existing ones to provide a broadband service, next generation DSL, and actually a broadband capability to the network bay.*[85]

Mr. McNamara of Bell-South echoed his optimism, stating that "*all* of our growth today is going on next generation products. We aren't deploying *any* old technology to DLC any more. It is all next generation products with copper feeder."[86] There is nothing inherently wrong with incumbent LECs efforts to upgrade their respective networks. To the contrary, Joint Commenters believe the Act creates the proper incentives for the incumbent LECs to continue upgrading their networks. The Act also created corresponding obligations on incumbent LECs to open those networks "at any technically feasible point" for interconnection. A duty the incumbents have chosen to ignore.

B. ILECs Must Provide Sufficient Collocation Space at Remote Terminals

The Commission should give little credence to incumbent LEC justifications and excuses for not providing collocation at remote terminals. At bottom, incumbent LECs can plan for or provision additional space in the remote terminals. Moreover, expanding remote terminal space is far less difficult and expensive than that of central office space.

Section 251(c)(6) of the Act does not limit the duty to "provide physical collocation of equipment necessary for interconnection or access to unbundled network elements," to central

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85 Tr. 12 (emphasis added).

86 *Id.* at 14 (emphasis added).

offices. As incumbent LECs deploy central office functions to remote terminals, their obligations to provide access to those functions travel with them. Collocation at the remote terminal has become increasingly "necessary" to achieve interconnection and meaningful access to UNEs. Under existing nondiscrimination requirements, to the extent that any service provided by an incumbent LEC *cannot* be provided by the CLEC without collocation at the remote terminal, the incumbent LEC must be obligated to provide such collocation. Otherwise, the incumbent LEC cannot possibly satisfy its obligation to provide nondiscriminatory interconnection "that is at least equal in quality to that provided . . . to itself . . . ." [87] Nor can it satisfy its obligation to provide access to UNEs on "just and reasonable" and "nondiscriminatory" terms and conditions.[88]

Under this statutory scheme, collocation at remote terminals is most definitely "necessary." Without the ability to collocate DSLAMs, line cards and other equipment at remote terminals, CLECs are essentially denied interconnection with incumbent LEC DLC equipment and access to the feeder subloop, thereby limiting xDSL service by CLECs to customers served by spare, home-run copper loops shorter than 18,000 feet.

Incumbent LECs already use the remote terminal as an obstacle to competition. For example, incumbent LECs deny access to space within remote terminals on the discriminatory pretext that such space is necessary to enable them to serve future demand. In proceedings, Verizon has taken the position that it need not allow data CLECs to engage in line sharing over DLC loops, contending that, by definition, line sharing can only be done over home-run copper.[89] Verizon has rejected the wholly reasonable "plug and play option" advocated by Covad – whereby CLECs collocate line cards in incumbent LEC DSLAMS -- as somehow incompatible

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87 47 U.S.C. § 251(c)(2)(C).

88 47 U.S.C.§ 251(c)(3).

89 *See, e.g., Petition of Covad Communications Company for an Arbitration Award Against Bell Atlantic Pennsylvania, Inc., Implementing the Line Sharing Unbundled Network Element; Petition of Rhythms Links, Inc. for an Expedited Arbitration Award Implementing Line Sharing*, PA PUC Docket Nos. A-310696F0002 and A-310698F0002, Recommended Decision at p. 38 (June 28, 2000)(*"PA ALJ Order"*).

with the functionality of its own equipment, offering instead to permit adjacent collocation, whereby CLECs are left to obtain the necessary permits and easements and to overcome the aesthetic objections of local homeowners to the mushrooming of remote terminals.

Incumbent LECs should have an absolute obligation to provide collocation space at remote terminals, without distinction between current and future collocation space in remote terminals and at pricing consistent with forward-looking incremental costing methodology. In addition, incumbent LECs should not be permitted to use retail and wholesale demand projections as the basis for denying collocation space. An incumbent LEC should be required to provide additional space regardless of its demand forecasts. Otherwise, incumbent LECs can effectively block CLECs from collocating in remote terminals by a combination of underestimating space and overestimating subscription, knowing that CLECs may not be able to construct adequate space at all or in time to compete.[90] To the extent that an incumbent LEC would be permitted to address space exhaustion by use of an adjacent or near remote terminal, the Commission should specify that the incumbent LEC should bear the responsibility and cost of resolving all issues relating to easements and land-use restrictions. Such a position will provide the incumbent LEC with the proper incentive to plan for competitive use of its facilities *at the outset* before increasing land-use resistance develops in the local community.

The Commission should establish a reasonable time period for incumbent LEC provision of collocation space in or near the remote terminal. Joint Commenters recommend the Commission adopt rules requiring incumbent LECs to provide such space within 90 days.

C. Disclosure of Remote Terminal Information Should be Required

[90] As noted, with fiber deployed in the loop, collocation in remote terminals becomes as important as collocation in central offices for provision of competitive advanced services.

The same pre-application information regarding space availability in central offices is needed for remote terminals. CLECs, particularly those providing advanced services, need to know whether and how much collocation space is available at the remote terminal.

When a CLEC makes a request of an incumbent LEC for collocation space at a remote terminal, the incumbent LEC should, within 10 calendar days, provide it with schematic drawings of the remote terminal and all adjacent space, as well as information concerning: (1) the amount and dimensions of available collocation space available, including discrete blocks of space; (2) separate identification, through color coding or similar scheme, of the space occupied by the incumbent LEC; (3) identification of the type and model of the equipment installed by the incumbent; (4) the number of other collocators and space they occupy; (5) any modifications or augments to the space since the last report to the requesting carrier; and (6) plans on the part of the incumbent to make any additional space available.

D. ILEC Remote Terminals Must Support Interconnection By CLECs

As mentioned above, the remote terminal is becoming the new central office. Incumbent LECs must not be permitted to artificially constrain interconnection at remote terminals by using equipment or facilities that unnecessarily limits CLECs' ability to effect interconnection there. Although any restriction on the ability of an incumbent LEC to select the equipment that best serves its needs is an inconvenience, that inconvenience should be balanced against other valid concerns, namely, the promotion of advanced services in an open and competitive manner. Thus, incumbent LECs should be required to take steps to ensure that the equipment they deploy to interface with CLEC equipment should be outfitted with universal interfaces and protocols so as to enable efficient interconnection on just and reasonable and nondiscriminatory terms and conditions.

IV. NEXT GENERATION NETWORK ARCHITECTURES REQUIRE THAT THE COMMISSION UPDATE ITS LOCAL COMPETITION RULES

A. "Project Pronto" and Richardson, Texas Deployments Illustrate the Critical Need For New Local Competition Rules.

In the *Collocation Reconsideration Order and NPRM*, the Commission seeks comment on whether the deployment of new architecture and electronics by incumbent LECs requires the Commission to revisit its local competition rules, particularly its rules on unbundling. Joint Commenters assert that incumbent LECs' deployment of so-called next generation network technologies demonstrates the pressing need for new rules. In Project Pronto, SBC has proposed network deployments that would permit that incumbent carrier to control the pace and scope of competition in advanced services. In Richardson, Texas, SBC has virtually eradicated xDSL competition by unilaterally removing copper loops.

Joint Commenters echo industry's concern that "ILECs will extend their monopoly power over local telephony to advanced services by operating and controlling next-generation networks in a manner that ensures that only the incumbent LECs (and their data affiliates) will be able to recognize the full benefits of new network technology and architecture."[91] Without Commission action, the full benefits of this new architecture and technology are unlikely to extend to customers of CLECs and incumbent LECs alike. First, the Commission should revisit its local competition rules to assure that advanced services electronics and capabilities are included in the definition of loop and transport UNEs. Second, the Commission should establish new advanced service UNEs. Lastly, ILECs must be required to disclose network capabilities.

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[91] *In the Matters of Deployment of Wireline Services Offering Advanced Telecommunications Capability; Implementation of the Local Competition Provisions of the Telecommunications Act of 1996; Application for Consent to the Transfer of Control of Licenses and Section 214 Authorizations from Ameritech Corporation, Transferor to SBC Communications, Inc., Transferee; Common Carrier Bureau and Office of Technology Announce Public Forum on Competitive Access to Next-Generation Remote Terminals*, CC Docket Nos. 98-147, 96-98, 98-141, and NSD-L-00-48, Reply Comments of AT&T Corp. at p. 12 (July 10, 2000)("*AT&T ALTS Petition Reply Comments*").

B. Loop and Transport UNEs Should Include Advanced Services Electronics

A network element is defined under the Act as a "facility or equipment used in the provision of a telecommunication service" which includes the "features, functions, and capabilities that are provided by means of such facility."[92] The loop was initially defined by the Commission as "a transmission facility between a distribution frame, or its equivalent, in an incumbent LEC central office, and the network interface device at the customer premises."[93] In its *UNE Remand Order*, the Commission modified its definition of the loop network element to include "all features, functions and capabilities of the transmission facilities, including dark fiber and attached electronics *(except those used for the provision of advanced services, such as DSLAMs)* owned by the incumbent LEC, between an incumbent LEC's central office and the loop demarcation at the customer premises."[94] The Commission has sought to ensure that its definition of the loop will apply to "new as well as current technologies."[95]

SBC's request for waiver of the SBC/Ameritech merger conditions to authorize the SBC/Ameritech incumbent LEC to own combinations POTS/ADSL plugs/cards located in remote terminals as well as optical concentration devices ("OCDs") located in central offices demonstrates the unworkability of excluding line cards and OCDs from the definition of the loop UNE.[96] As discussed below, the Commission should redefine the loop UNE to include both line cards and OCDs employed as part of DLC systems deployed by incumbent LECs.

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92 47 U.S.C. § 153(29).

93 *In the Matter of the Implementation of the Local Competition Provisions in the Telecommunications Act of 1996*, CC Docket No. 96-98, FCC 96-325, First Report and Order, 11 FCC Rcd. at 15499 at ¶ 380 (1996)("*Local Competition Order*").

94 *In the Matter of Implementation of the Local Competition Provisions of the Telecommunications Act of 1996*, CC Docket No. 96-98, FCC 99-238, ¶ 167 (1999)("*UNE Remand Order*") (emphasis added).

95 *Id.*

96 *Applications for Consent to Transfer Control of Licenses and Section 214 Authorizations from Ameritech Corporation, Transferor, to SBC Communications, Inc., Transferee*, CC Docket No. 98-141, Request for Interpretation, Waiver or Suspension of Merger Conditions Affecting the Ownership of Plugs/Cards and OCDs (Feb. 15, 2000).

1. Line Cards

The Commission should include combination card/plugs within the definition of a loop. By SBC's own definition the combination unit equipment is "an integrated piece of technology having both POTS and DSLAM capabilities as well as the 'splitter' functionality."[97] DLCs, unlike DSLAMs, are not used solely for the provision of advanced services, but are "deployed where there are multiple service requirements (*i.e.*, voice and data)."[98] Thus, the basis for excluding DSLAMs from the definition of the loop is not present with the combination cards. They are integrated, multi-functional equipment that play a vital role in the transmission of non-advanced, as well as advanced, services. The Commission noted in its *UNE Remand Order* that:

> [S]ome loops, such as integrated digital loop carrier (IDLC), are equipped with multiplexing devices, without which they cannot be used to provide service to end users. Because excluding such equipment from the definition of the loop would limit the functionality of the loop, we include the attached electronics (with the exception of DSLAMs) within the loop definition.[99]

Likewise, these integrated cards must be included in the definition of the loop because excluding them would limit the functionality of the loop. The new equipment being produced by vendors today provides such integrated functionality so that the line between implementing advanced and implementing non-advanced services is blurred. The Commission should rethink its exclusion of equipment used in the provision of advanced services from the definition of the loop. Such a bright-line distinction is no longer tenable given the technology advances that have resulted in integrated equipment. Imprecise application of such a non-existent distinction would exclude equipment that is crucial to the functionality of the loop.

2. Optical Concentration Devices

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97 *SBC Letter* at p. 4.

98 *Alcatel Comments*, p. 2. SBC argues that the cards are not advanced services equipment, and notes the majority of the cards will be used to provide POTS service, at least initially. *SBC Letter* at p. 4; *see also*, SBC Reply Comments at p. 7.

99 *UNE Remand Order* at ¶ 175.

OCDs, which are essentially ATM switches, separate each CLEC's ATM packetized bitstream from the common ATM packetized bitstream coming from the remote terminals, and hand off the appropriate packetized bitstream to each CLEC and incumbent LEC advanced services affiliate.[100] Under SBC's proposed network configuration in Project Pronto, the ATM switches are "the only means by which the ADSL-based traffic of multiple CLECs can be aggregated and disaggregated."[101] Thus, the OCD will be the only feasible point at which CLECs can get access to the ATM's bit streams coming from their customers.[102] Therefore, the Commission should define the loop UNE as including OCDs where such devices are deployed. This will enable CLECs to access the OCD functionality as part of the loop UNE.

C. CLECS Must Be Permitted to Deploy Their Own Line Cards

The plug/cards in the Project Pronto system are multi-functional, *i.e.*, they provide DSL functionality, DSLAM functionality, and splitter functionality.[103] SBC describes the combination card/plug as "an integrated piece of technology having both POTS and DSLAM capabilities as well as the "splitter" functionality."[104] SBC has threatened to prohibit the collocation of CLEC DSLAMs within most remote terminals because of alleged lack of space.[105] As discussed, the

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100 CC Docket 98-141, *Ex Parte* Letter from DSL Access Telecommunications Alliance to Carol Mattey at p. 4 (April 11, 2000)("*DATA Letter*").

101 *Id.* The placement of the OCDs in the central office is an indication of SBC's failure to consider more economical alternatives, such as allowing CLECs to access the bitstream at the DLC, which would preclude the need for a central-office based ATM switch, including the need for a multiport DLC at the CO, and allow for the deployment of fewer ATM switches. *Id.* The failure to implement a cost-effective architecture will surely lead to higher proposed cost-recovery from SBC for use of this functionality. *Id.*

102 *Id.*

103 *Petition of Covad Communications Company for an Arbitration Award Against Bell Atlantic Pennsylvania, Inc., Implementing the Line Sharing Unbundled Network Element; Petition of Rhythms Links, Inc. for an Expedited Arbitration Award Implementing Line Sharing*, PA PUC Docket Nos. A-310696F0002 and A-310698F0002, Recommended Decision at p. 36 (June 28, 2000)("*PA ALJ Ruling*").

104 CC Docket No. 98-141, Letter from Paul K. Mancini, SBC Vice President and Assistant General Counsel to Lawrence Strickling, Common Carrier Bureau at p. 4 (February 15, 2000)("*SBC Letter*").

105 *In the Matter of SBC Communications, Inc., et al., for Provision of In-Region InterLATA Services in Texas*, CC Docket No. 00-65, Supplemental Comments of AT&T Corp. at p. 24 (April 26, 2000); *Response to SBC's Requests for Interpretation, Waiver or Suspension of Merger Conditions Affecting the Ownership of Plugs/Cards and OCDs*, CC Docket 98-141, *Ex Parte* Letter from DSL Access Telecommunications Alliance to Carol Mattey at p. 3 (April 11, 2000)("*DATA Letter*").